REMARKS

Claims 1, 3-4, 6-13, 19 and 22-28 were pending in the application at the time of examination. Claims 1, 3, 4, 6, 9-11, 19, 23, 26 and 28 have been amended. New claim 29 has been added.

35 U.S.C. 112 rejections

Claims 1, 3-4, 6-13, 19 and 22-28 stand rejected under 35 U.S.C. 112 as failing to comply with the written description requirement. The claims have been amended to comply with the written description requirement.

35 U.S.C. 103(a) rejections

Claims 1, 3-4, 6-7, 9, 11-13, 19 and 22-28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Murata et al of record in view of Singh et al (US 2002/0027954 A1) and Jun et al (US 2001/60021268 A1). Reconsideration of the rejections set forth in the Office Action dated November 2, 2006 is respectfully requested in view of the preceding amendments and the following remarks. It is respectfully submitted that no combination of the art of record reasonably suggests the currently claimed inventions.

Amended claim 1 is recited below:

1.   A method for selecting inverse discrete cosine transform (iDCT) algorithms, comprising:

a)   examining the coefficients of a plurality of DCT blocks corresponding to selected frames within a video shot to determine an End of Block (EOB) length for each of the examined DCT blocks, wherein a video shot is a sequence of frames bounded on each side by a video transition;

b)   examining a distribution of EOB lengths associated with a single selected frame;

c)   selecting a customized subset of iDCT algorithms for the entire video shot from a larger set of iDCT algorithms according to the distribution of EOB lengths for the single selected frame; and

d)   selecting and executing one of the customized subset of iDCT algorithms for each of the plurality of blocks within the video shot according to the associated EOB lengths of the blocks.

The Murata reference, which is made of record in the present application, describes a method of selecting iDCT algorithms for blocks in a video frame of a video sequence according to their EOB lengths (present application pg. 15 line 24 through pg. 16 line 24). By way of example, the iDCT_DC algorithm is used when the EOB length is 1. Employing a plurality of alternative iDCT algorithms significantly reduces the _average_ execution time of the iDCT algorithm by selecting an appropriate iDCT algorithm for each block according to the EOB length of the block.

The present invention improves upon the current methods, and particularly, the method of Murata. It has been determined that simply making a larger number of alternative iDCT algorithms available does not necessarily increase performance (pg. 16 lines 20-24). The method of the present invention makes use of two observed properties of typical EOB probability distributions in order to select a customized subset of alternative iDCT algorithms from a larger set of iDCT algorithms based upon the EOB distribution of a single selected frame of a video shot. These properties are: 1) "EOB address probability distributions may vary significantly for different video shots (pg. 17 lines7-8)"; and 2) "Within a shot and over spans of a few hundred frames EOB histograms often show little significant variance...Therefore, the optimal mix of iDCT routines remains fairly static within an individual shot (pg. 17 lines 21-23)." In view of these properties, a customized set of iDCT algorithms is selected for the entire video shot. The customized subset is subsequently used for every block of the entire video shot to be transformed. Similarly, a new customized subset is chosen for each subsequent video shot on a shot by shot basis. It has been found during experimentation that choosing a customized set of iDCT algorithms for each shot improves average decoding speed but does not introduce significant branch misprediction penalties (pg. 18 lines 1-14). It is respectfully submitted that no combination of Murata, Singh, Jun and/or any other art of record teaches nor reasonably suggests the currently claimed invention as recited in claim 1.

Furthermore, it is respectfully submitted that the present invention cannot be considered as obvious in view of Murata since the present application provides experimental results demonstrating the improvement achieved when practicing the present invention as compared directly to the method of Murata. More particularly, the method of the present invention (method 430) showed 35%, 18%, 22%, and 6% reduction in execution times for the "DVM Demo," "Football," "Flower Garden" and "Space Station" sequences, respectively, as compared to 15%, 9%, 2% and 0% for the method of Murata (method 420) (FIG. 7 and pg. 23 line 10

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PAGE 10/11 * RCVD AT 1/3/2007 2:57:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/9 * DNIS:2738300 * CSID:16509618301 * DURATION (mm-ss):03-10

through pg. 24 line 15). Therefore, the present invention clearly represents an improvement over the method of Murata.
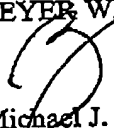
In view of the foregoing, it is respectfully submitted that the outstanding rejection of claim 1 be withdrawn. Claims 3, 7-8, 19, 23-25 and 29 each depend either directly or indirectly from independent claim 1 and are therefore respectfully submitted to be patentable over the art of record for at least the reasons set forth above with respect to claim 1. Furthermore, these dependent claims require additional elements that when considered in the context of the claimed invention further patentably distinguish the art of record.

All other independent claims (4, 6 and 11) recite essentially the same limitations as claim 1 and are also believed to be allowable as are their respective dependent claims.

CONCLUSION

In view of the foregoing amendments it is respectfully submitted that the present application is now in condition for allowance. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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